

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
WATER PRESSURE REGULATOR ITEM 136 ----- SV792528-5 (1)	2/1R	136FM04A External leakage, water. Housing seal leakage, diaphragm ruptures or leaks.	END ITEM: Water leakage to ambient. GFE INTERFACE: Depletion of water reservoir. Loss of LCVG cooling. Possible helmet fogging. MISSION: Terminate EVA when water supply drops below CWS limits. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Minutes. If cooling/ defog is required, open purge valve to activate SOP. TIME AVAILABLE: Minutes. TIME REQUIRED: Seconds. REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	A. Design - The housing is sealed by the use of radial O-seal. This elastomeric O-seal conforms to the surfaces to be sealed over the temperature range of 32 degree F to 120 degree F. The diaphragm is of silicone material and operates in the flat position thereby minimizing operating stresses. The diaphragm will operate with less than 10% stretch with a capability of stretching to 500%. The piston to housing clearance is controlled to 0.002 to 0.005 to provide minimum support of the diaphragm. The diaphragm seal is based on a O-seal type configuration and is designed for a controlled squeeze. B. Test - Component Acceptance Test - Two methods are used to measure external leakage per AT-E-136-2. In the first method the item is pressurized to 23-25 psig with nitrogen and submerged in water. No leakage is allowed in a 5 minute period or leakage for a 60 minute period must not exceed 1 cc/hr. For the second method the item is pressurized to 23-25 psig with water for a 60 minute test period. Leakage must not exceed 0.01 cc/hr. PDA Test - A combined water circuits leakage test is run per SEMU-60-010. In this test the water circuits are pressurized to 15.7 - 15.9 psig with water for 60 minutes minimum. Leakage must not exceed 6 scc/hr. Certification Test - Certified for a useful life of 15 years (ref. SEMU-46-004). C. Inspection - The housing seal leaks are prevented by inspection of the seal grooves for visual and dimensional requirements to insure proper seal finish and size. A surface finish of 63 microinch is maintained. Lubricated Braycote "O" rings are carefully assembled to insure proper seating. Diaphragm leaks or ruptures are prevented by 100% visual inspection at 10X for flows or voids. The diaphragms are manufactured from quality approved molds to insure uniformity of each detail. D. Failure History - None. E. Ground Turnaround - Inspected for non-EET processing per FEMU-R-001, SEMU H2O and O2 Servicing for Flight. None for EET processing. F. Operational Use - Crew Response - EVA: When CWS data confirms depletion of primary feedwater, terminate EVA. Training - Standard EMU training covers this failure mode. Operational Considerations - Flight rules define go/no go criteria related to EMU thermal control. Flight rules define EMU as go to remain on SCU (available for rescue if required). Real

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136FM04A

Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-136 FEEDWATER PRESSURE REGULATOR
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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